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Department of Mental Health and Mental Retardation
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MEMORANDUM

TO: Vermont Adult Performance Indicator Project Advisory Group

FROM: John A. Pandiani
Lisa Gauvin *Lisa*

DATE: April 1, 1997

RE: Corrected Mortality Rates

The preliminary analysis of mortality rates for recipients of behavioral health services in Vermont that we distributed to you last week included incorrect estimates for community mental health programs. We have reanalyzed the data and have enclosed a corrected version of the report on mortality rates.

Please accept our apologies.

MORTALITY RATES

For People Served by Behavioral Health Care Programs in Vermont

QUESTION: How do mortality rates for people served by behavioral health care programs compare with mortality rates for the general public? (This question is related to concerns that recipients of behavioral health care have less access to general health care than others. Differential mortality may indicate that behavioral health care recipients do not receive the same degree of aggressive effective medical care as other people.)

DATA: Four data sets were used in this analysis: the Hospital Discharge Data Set and Vital Statistics System maintained by the Vermont Health Department, and the Vermont State Hospital (VSH) and the Quarterly Service Report (QSR) data bases maintained by the Vermont Department of Developmental and Mental Health Services. The Hospital Discharge Data Set includes basic demographic, clinical, and service data for all Vermont residents hospitalized in general hospitals in Vermont or New Hampshire. The Vital Statistics System includes records of all deaths of Vermont residents. The VSH data base includes basic demographic, clinical, and service data for all VSH patients. The QSR data base includes basic demographic, clinical, and service information for all clients served by publicly funded community mental health programs that serve adults with a severe and persistent mental illness (CRT programs), programs for adults experiencing emotional or adjustment problems (Adult Outpatient Programs), and programs for people with substance abuse problems. The Vital Statistics System and the VSH data base include unique person identifiers. The Hospital Discharge data set and the QSR data set *do not* include unique person identifiers.

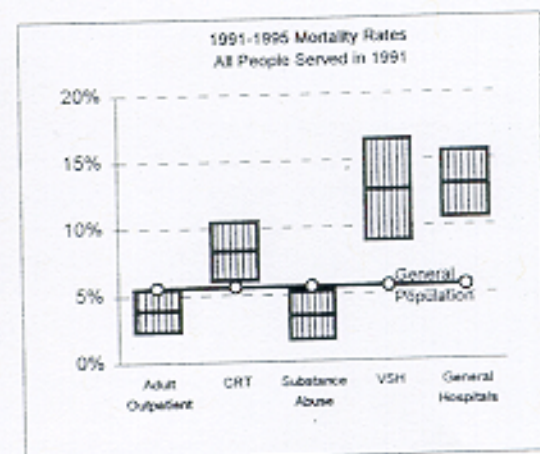
ANALYSIS: The analysis reported here compares the 1991-1995 mortality rates of adults who received behavioral health care services in a variety of settings during 1991 with the mortality rates of the general population of the State of Vermont for the same time period. The analysis includes overall mortality rates, and mortality rates for four age groups. Mortality rates for the general population were derived by dividing the number of people who died during 1991-1995 by the 1991 population of Vermont (overall and for specified age groups). Mortality rates for people who received behavioral health care services during 1991 were determined in a two-step process. First, the number of people represented in both a 1991 service data set and the 1991-1995 mortality data set was determined using probabilistic population estimation¹. Second, the resulting number was divided by the number of people served by that program during 1991. The accompanying graphs include probabilistically determined mortality rates with 95% confidence intervals (grey area) compared to general population mortality rates.

RESULTS: Vermont residents who received inpatient behavioral health care and clients served by CRT programs in the state during 1991 had significantly higher mortality rates than members of the general population. The mortality rates for clients of Vermont's Adult Outpatient and Substance Abuse programs, however, were lower than the mortality rates of the general population, overall.

People in different age groups had substantially different mortality rates. Among members of the general population, the 1991-1995 mortality rates for residents of Vermont varied from 0.5% for people who were 18 to 34 and 1.1% for people who were 35 to 49 years old in 1991, to 5.1% for people in the 50 to 64 age group and 26.4 for people who were 65 or older.

Mortality rates of Adult Outpatient clients were similar to the mortality rates for the general population in every age group. (The lower than average mortality noted above is a function of the fact that clients of adult outpatient programs tend to be in the younger age groups.)

Mortality rates for clients of CRT programs were significantly higher than the mortality rates of the general population for our three youngest age groups (18-34; 35-49; and 50-64). Mortality rates for CRT



¹ Banks, SM and Pandiani, JA (1996) Mathematical Derivation and Properties of the Probabilistic Population Estimator, Paradigm Associates, Albany, NY.

clients 65 or over were no different than for members of the general population.

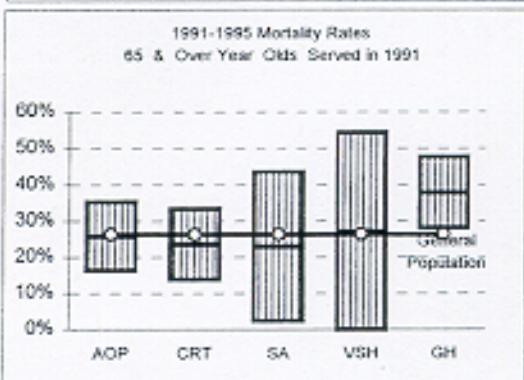
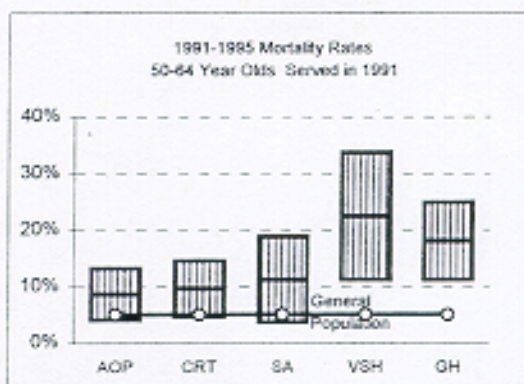
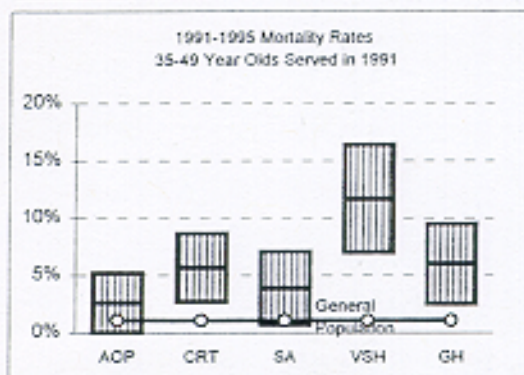
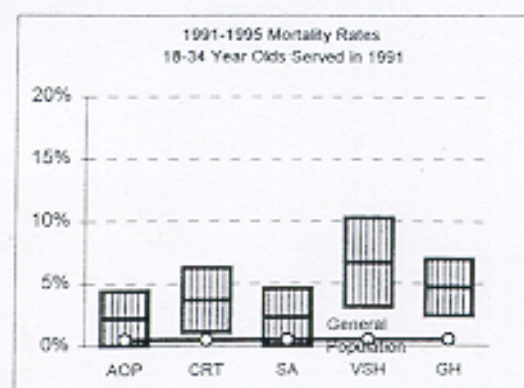
The mortality rates for clients of community mental health Substance Abuse programs were not significantly different than the mortality rate of the general population for any of the age groups. (The lower than average mortality for substance abuse clients as a whole is a function of the fact that clients of adult outpatient programs tend to be in the younger age groups.)

Mortality rates for people who had spent time in the Vermont State Hospital were significantly higher than the general population for the three age groups that include people under 65 years of age, but there was no difference between the mortality rates of VSH patients who were 65 or over and other residents of Vermont in the same age group.

The 1991-1995 mortality rates of people who had been in general hospitals for mental health or substance abuse problems during 1991 were higher than members of the general population for every age group.

NEXT QUESTIONS: The results of this analysis of mortality rates of people served by behavioral health care programs in Vermont raise a number of interesting questions for further analysis. A number of questions raised by the staff of the Vermont Mental Health Performance Indicator project were related to causes of death. Would the observed patterns be different if accidental deaths were separated from death due to "natural" causes? Should deaths due to suicide be excluded from analyses that use mortality as a proxy for access to general health care? Does suicide account for any of the variation in mortality rates between people who received behavioral health care and other residents of the state?

These results have also raised questions about variation in mortality rates over time and in different geographical regions. Are mortality rates for recipients of behavioral health care services in Vermont similar to mortality rates for recipients of similar services in other states? Do mortality rates vary across regions in Vermont, or among community or inpatient service provider organizations? Finally, have the mortality rates observed in this study been consistent over time, or do they change from year to year?



AOP - Adult Outpatient Programs
 CRT - Community Rehabilitation and Treatment
 SA - Substance Abuse Programs
 VSH - Vermont State Hospital
 GH - Vermont and New Hampshire General Hospitals

1991 - 1995 Mortality Rates
 People Served by Behavioral Health Care Programs in Vermont, During 1991

	Clients of				Patients at	
	Vermont Population	Adult Outpatient Programs	CRT Programs	Substance Abuse Programs	Vermont State Hospital	General Hospitals (VT and NH)
Total	6%	4% ± 2%	8% ± 2%	3% ± 2%	13% ± 4%	13% ± 2%
18-34	1%	2% ± 2%	4% ± 3%	2% ± 2%	7% ± 4%	5% ± 2%
35-49	1%	2% ± 3%	6% ± 3%	4% ± 3%	12% ± 5%	6% ± 4%
50-64	5%	9% ± 5%	10% ± 5%	11% ± 8%	22% ± 11%	18% ± 7%
65&over	26%	26% ± 10%	24% ± 10%	23% ± 21%	24% ± 27%	38% ± 10%